OC3140
HW/Lab 4 Probability

1. Select two basketball teams (of 5) from 15 students. How many ways can this be accomplished? If, there are two who will not play together on the same team, how many possible selections are available?

2. The probability that an American industry will locate in San Jose is 0.7, the probability that it will locate in Monterey is 0.4, and the probability that it will locate in either San Jose or Monterey or both is 0.8. What is the probability that the industry will locate

   (a). in both cities?
   (b). in neither city?

3. Consider a probability density function as: $f(x) = \begin{cases} k\sqrt{x} & 0 < x < 1 \\ 0 & elsewhere \end{cases}$

   (a) Evaluate. k
   (b) Find $F(x)$ and use it to evaluate $P(0.3 < x < 0.6)$.

4. The waiting time, in hours, between successive speeders spotted by a radar unit is the continuous random variables with cumulative distribution.

$$F(x) = \begin{cases} 0 & x \le 0 \\ 1 - e^{-8x} & x > 0 \end{cases}$$

   Find the probability of waiting less than 12 minutes between successive speeders.

   (a) using the cumulative distribution of x.
   (b) using the probability density function of x.